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TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

No. 101

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This serial report contains information from the world press and radio relating to worldwide political, economic and technical developments in telecommunications, computers, and satellite communications. Coverage will be worldwide with focus on France, Federal Republic of Germany, United Kingdom, Italy, Japan, the USSR, People's Republic of China, Sweden, and the Netherlands.

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WORLDWIDE REPORT

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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WORLD ADMINISTRATIVE RADIO CONFERENCE ENDS, RESULTS NOTED

'DPA' Report

LD062048 Hamburg DPA in German 1552 GMT 6 Dec 79 LD

[Excerpts] Geneva--The World Administrative Radio Conference (WARC) ended in Geneva on Thursday with the signing of an almost 1,300-page final document by the heads of delegations from 144 countries. The meeting, which was organized by the International Telecommunication Union (ITU), was primarily concerned with the reorganization and allocation of frequency ranges for radio services, but not with a reassignment of wave ranges for individual radio or television stations.

In the opinion of the head of the German delegation, Heinrich Venhaus of the Federal Ministry of Transport, Post and Telecommunications, there were neither winners nor losers at the mammoth meeting. Venhaus noted that a pleasing number of compromises had been reached.

At the signing of the final document in Geneva on Thursday evening a whole series of footnotes were also signed. These provide for exceptions for certain regions or countries. There are no fewer than 83 reservations in which individual countries or groups of countries distance themselves from certain provisions. Two of them are signed by the Federal Republic: It is "not completely" in agreement with the frequency allocation in the short wave range for fixed and mobile radio services. Together with 13 other countries it has objections to frequency allocations in the mobile satellite system.

This is a purely technical matter, however. Political disputes were largely excluded. The delays at the very end of the long negotiations were explained by the fact that the printers needed a bit longer to deliver the 1,300 pages.

'TASS' Report

LD072300 Moscow TASS International Service in Russian 1445 GMT 7 Dec 79 LD

[Text] Geneva, 7 Dec, TASS--The World Administrative Radio Conference in which delegations from 148 countries took part has ended in Geneva.

The conference worked out new regulations for radio communications which determine the use of radio frequency bands on which various radio services should operate and the rules for their operations and procedures in the international registration of frequencies.

The conference devoted considerable attention to questions connected with the work of the technical side of television and radio broadcasting. Additional frequency bands were allocated to these services which should make it possible to improve the operating conditions of television and radio stations and to increase the number of programs carried by them.

Over the past few years television transmission and the use of artificial earth satellites have been extensively developed. The conference took into account the requirements of these prospective types of radio communications by allocating additional frequency bands to them and defining precisely their work and their international registration.

Conference decisions defined the further development of radio communications with sea vessels and airplanes. They took into account the interests of the developing countries in the sphere of radio communications and television broadcasting. In order to safeguard the needs of all countries in the development of television, radio broadcasting and radio communications and to insure that they have equal access to the spectrum of radio frequencies and to the orbit of geostationary earth satellites, the conference adopted a decision concerning the further drawing up of plans enabling all countries to use radio frequencies and the orbit of geostationary satellites for these radio services.

'XINHUA' Report

OW071712 Beijing XINHUA in English 1617 GMT 7 Dec 79 OW

[Text] Geneva, 7 Dec (XINHUA)--A new set of international radio regulations was included in a final document signed by representatives of 133 countries including China to the World Administrative Radio Conference which ended here yesterday.

The conference was the biggest ever in the history of its sponsor--the International Telecommunication Union (ITU).

The major task of the conference was to make an overhaul of the existing international radio regulations which were framed in 1959. Since then, many new independent countries have emerged and the demand for radio telecommunications becomes ever greater.

What is more, the past 20 years have witnessed a rapid development of telecommunications technology.

The partial revisions of the existing regulations, made in recent years, failed to make the regulations adequate to cope with the present situation.

Consequently, the conference has re-allocated the radio frequency spectrums and made room for development of telecommunications in the remaining years of this century.

The new table of frequency allocations adopted at the conference expands the frequency bands of the satellite communications, increasing those for space research and earthly survey satellites. It assigns new frequency bands for communications between satellites.

The new regulations give some favourable considerations to the needs of the developing countries by adding some clauses on the short-wave communications frequencies. Special resolutions were adopted on the check-up of the list of international radio frequency master register, calling on developed countries with more advanced means to give part of the short-wave frequencies which they occupy to developing countries. After the check-up, all countries should be on an equal footing as far as the remaining frequencies in the list are concerned.

[Word indistinct] debate, the conference adopted two draft resolutions tabled by China and some other developing countries to ensure equal rights for all states in their use of frequency bands and of the locations of the tracks of the stationary earth satellites.

The new international radio regulations will come into force on January 1, 1982.

CSO: 5500

ITALY-SOMALIA ESTABLISH SATELLITE COMMUNICATION SYSTEM

Rome IL TEMPO in Italian 21 Oct 79 p 21

[Text] Since yesterday Somalia has had its first earth station for satellite communications, which is being called by the name KAARAAN 1. The station, which was supplied complete to the Somali Postal and Telecommunications Administration by Italcable, in collaboration with the associated STS, a joint company of the IRI-STET group, was inaugurated yesterday, in the presence of a delegation from both Italian companies, by President of the Somali Democratic Republic, His Excellency Siad Barre.

The placing in service of KAARAAN 1 is the happy conclusion of an agreement which came out of the negotiations which Italcable, with the approval and the assistance of the Italian Postal and Telecommunications Ministry, conducted with the Somali Postal and Telecommunications Administration, for the purpose of insuring that transmitting facilities and services will keep up with the increasing demands of the users in that country. The agreement confirms the primary role of Italy's cooperation as the transit center for Somalia's telecommunications traffic.

Besides telephone service, the new station will permit a completely automated telex service, which was inaugurated during the course of the ceremony by an exchange of messages between Italian Postal and Telecommunications Minister Vittorino Colombo, and Postal and Telecommunications Minister of the Somali Democratic Republic, Abdullahai Ossoble Siyad.

Italcable itself will guarantee, finally, with the collaboration of the associated Telespazio, full assistance to the Somali Postal and Telecommunications Ministry for the operation and maintenance of the installations.

With the important achievement, Somalia is taking a further step toward alinement with the more advanced countries in the sector of telecommunications, conscious of the opportunity to improve this essential sector of technological development.

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CSO: 5500

BRIEFS

USSR-KUWAIT EXCHANGE INFORMATION--A protocol was signed in Moscow on cooperation between the State Committee for Soviet Radio and Television and the Kuwaiti Information Ministry. The protocol stipulates the exchange of radio and television material on the life of the peoples of the two countries as well as cultural, musical and documentary material. 'Abd al-'Aziz Ja'far, under secretary of the Kuwait Information Ministry, made a statement. He said: The protocol will be a good foundation for consolidating the cooperation between the two countries in the information media. It will play a big role in developing relations between the Soviet Union and Kuwait. [Text] [LD211445 Moscow in Arabic to the Arab World 1208 GMT 20 Nov 79 LD]

ASIA-PACIFIC BROADCASTING UNION--Beijing, 25 Nov (XINHUA)--The 16th conference and the 27th council meeting of the Asia-Pacific Broadcasting Union ended yesterday in Bali, Indonesia, according to a Hong Kong report. Indonesia's Director-General for Radio and Television Sumadi was named president of the Union, Ito from the Japan Broadcasting Corporation as secretary-general of the Union, and the Broadcasting Organizations of Sri Lanka, Papua New Guinea and Jordan elected as new council members. During the conference, representatives from the member countries discussed issues concerning further technical cooperation and exchanges of programs among the broadcasting and television organizations. [Text] [OW251558 Beijing XINHUA in English 1501 GMT 25 Nov 79 OW]

PARS-TANJUG SIGN AGREEMENT--The first cooperation agreement for the exchange of information and news between the Yugoslav TANJUG Agency and the Iranian PARS Agency was signed by the director of TANJUG and the deputy director of PARS Agency in Belgrade. The TANJUG and PARS agencies, in view of the expansion of the multisided information system proposed by the nonalined countries. have agreed to embark on an exchange of news. According to the agreement the two countries' agencies will also take steps to exchange news reportages and bulletins. This agreement has been worked out on the basis of mutual cooperation in all news aspects, particularly the exchange of pictures and reports in the three languages: Persian, Serbian and English. [Text] [LD011734 Tehran Domestic Service in Persian 1030 GMT 1 Dec 79 LD]

MEDITERRANEAN NONALINED COUNTRIES' MEETING--A meeting of broadcasting organizations from the Mediterranean nonalined countries of Malta, Algeria, Libya, Yugoslavia and Tunisia was held in Malta this week. The main aim of the meeting was to finalize arrangements for the setting up in Malta of a radio and television program bank for all Mediterranean nonalined countries. The meeting drafted a statute to regulate the running, functions and aims of the bank and finalized the report on the bank's main requirements during its formative years. Documents were also considered of detailed financial aspects of the running of such a project. It is planned that the bank would not only gather and distribute radio and television programs, but also plan and coordinate programs produced jointly by member countries. All documents emanating from the Malta meeting will now be submitted to the Fifth Conference of Nonalined Broadcasting Organizations, which is scheduled to open in Belgrade next Tuesday. The finalized project will also be submitted to the United Nations Educational, Scientific and Cultural Organization, UNESCO, which has been taking a great interest in the project since it was first (?brought up) 2 years ago. [Text] [LD081244 Valetta Radio Mediterranean in English 0700 GMT 8 Dec 79 LD]

MOROCCO-ITALY TELEPHONE LINK--Rabat, Oct 29, (MAP)--Mahjoubi Aherdane, Moroccan minister of postal services, inaugurated here Saturday a direct telephone connection between Morocco and Italy. On this occasion, Aherdane had a telephone call with the Moroccan ambassador to Italy. The Italian ambassador to Rabat and several other officials attended the inaugurating ceremony. [Text] [Rabat MAP in English 1220 FMT 29 Oct 79 LD]

HAVANA CEMA MEETING END--The 17th meeting of the CEMA standing committee for electrical and postal communications concluded this afternoon with the signing of a final protocol at the Palace of Conventions in Havana City. The 150-page document was signed by (Vladimir Aleksandrovich Sanschin), president of the CEMA standing committee and chief of the Soviet delegation, Pedro Guelmes Gonzalez, member of the PCC Central Committee, minister of communications, and chief of the Cuban delegation; as well as the chiefs of delegations from Bulgaria, Hungary, Vietnam, the GDR, Mongolia, Poland and Czechoslovakia. During the CEMA meeting, which was held in Havana City from 30 October to 5 November, the participants approved a motion on stepping up the development of postal communications and distribution of newspapers--including the aid of member countries to Cuba--which will be listed on the agenda of the next meeting to be held in Hungary in April 1980. Among the topics contained in the final protocol, the most important are multilateral specialization and cooperation in the production of the means of mechanization and automatization which are needed by postal communications enterprises and distribution of CEMA member countries' newspapers. [Text] [FL060146 Havana Domestic Service in Spanish 0000 GMT 6 Nov 79 FL]

URUGUAYAN-ITALIAN SATELLITE CONTRACT--Montevideo, 8 Nov (AFP)--The Uruguayan National Telephone Administration (ANTEL) has reported that it has signed a contract with an Italian consortium for the construction of a satellite communications station which will start operating in about 9 months. It will have direct telephone channels to the FRG, Canada, Spain, the United States, France and Italy. The station will have a total capacity of 60 telephone channels. [Paris AFP in Spanish 1443 GMT 8 Nov 79 PY]

GERMAN, PRC CORRESPONDENTS' EXCHANGE--Cologne--ARD [First German Television Service and Radio Service] and the Chinese State Broadcasting Service have agreed to make arrangements for the exchange of television correspondents. This is part of an agreement signed by ARD Chairman Von Sell with the central office for broadcasting in Beijing today. The two sides have also undertaken to assist each other in providing news coverage, the exchange of programs and in technical matters. According to West German radio the deputy director general of the Chinese central office of broadcasting, Li Lianqing has suggested sending a radio correspondent to Bonn. This would be the first radio correspondent of the Chinese People's Republic in Western Europe. ARD sound radio has been represented in Beijing since 1977 by its correspondent Hans Jachim Bargmann. [Text] [LD091532 Hamburg DPA in German 1352 GMT 9 Nov 79 LD]

CSO: 5500

BRIEFS

FACSIMILE SERVICE TO SINGAPORE--Taipei, Oct 20--The International Telecommunications administration Friday announced the opening of a high speed facsimile service between Taipei and Singapore. Communications Minister Lin Chin-sheng and other government officials will officiate at the inauguration ceremony Saturday morning with the transmission of a greeting message to Singapore. At the same time, Frank C. C. Lin, president of the Central News Agency, will send a Chinese news story to his Singapore correspondent by the newly opened service. The general public is requested to use the service to transmit commercial papers, legal documents, graphic matters and drawings between the two cities which will reach the other end via satellite in a couple of minutes at a cost of NT dollars 400 (U.S. dlrs 11.1) per sheet. [Text] [Taipei CNA in English 0240 GMT 20 Oct 79 OW]

JAPAN-KOREA COMMUNICATIONS CABLES--Seoul, Oct. 15--The government will lay 2,700 additional cables between Korea and Japan between 1980 and 1981 at a cost of 8,374 million won, according to the Economic Planning Board today. It plans to construct 600 cables next year and the rest in 1981 to meet the growing need in international communications. There are 384 cables on a scatter system basis between the two countries and 224 others via two earth satellite stations. [Text] [Seoul HAPTONG in English 0234 GMT 15 Oct 79 SK]

INDONESIAN-BANGLADESH SATELLITE AGREEMENT--Dacca, 20 Nov (ANTARA)--Indonesia in principle agrees to the use on a rental basis by Bangladesh of its communications satellite Palapa. The decision was reached at the meeting between President Suharto and President Ziaur Rahman Tuesday. [Excerpt] [BK220923 Jakarta ANTARA in English 0716 GMT 22 Nov 79 BK]

CSO: 5500

BRIEFS

PACIFIC UNDERSEA CABLE--Australia is aiming to take part in a multimillion dollar project to establish a new underseas communications cable system in the Pacific Ocean. The minister for posts and telecommunications, Mr Staley, said the system would provide between 1,200 and 1,800 telephone circuits between Sydney and Vancouver in Canada. Additional capacity would also be provided to Hawaii, New Zealand, Fiji and Norfolk Island. Mr Staley said the government was ready to spend up to $220 million U.S. on the project.
[Melbourne Overseas Service in English 1230 GMT 27 Nov 79 OW]

CSO: 5500

BRIEFS

NEW SATELLITE STATION--A new satellite station is to be commissioned in Dacca by September 1980. This was stated by the minister of post, telegraph and telephone, Mr Moidul Islam, in Dacca on 20 November. He said that commissioning the second earth satellite station will strengthen the country's satellite communications with the outside world. The introduction of the satellite system in the domestic telecommunication network is also being considered and accordingly negotiations are going on with the Indonesian Government to secure domestic satellite facilities. [BK251216 Dacca Overseas Service in English 1230 GMT 20 Nov 79 BK]

CSO: 5500

TELECOM PROJECTS IN WEST ASIA

Madras THE HINDU in English 8 Nov 79 p 10

[Text] New Delhi, Nov. 7--Overseas orders worth Rs. 6.5 crores have been secured against international competition by the State-owned Telecommunications Consultants India Ltd. (TCIL) in West Asian countries during the last one year since it was set up.

Stating this here at a news conference, Mr M P Shukla, Chairman and Managing Director of the TCIL said the total value of the projects in which the TCIL was participating as a sub-contractor would exceed Rs. 30 crores.

One of the projects in Kuwait for the rehabilitation of 200 pairs of PEF cables--awarded by the Kuwait Government had been completed. The remaining 3 projects include laying, jointing and testing of junction cables in Kuwait, maintenance of an international trunk exchange in Oman, planning and installation of local cable work in Dubai, installation of a 500 km microwave link in 1 contract for technical assistance in Nigeria, supervision of a road widening scheme in Abu Dhabi, installation and testing of external plant for a local network in Yemen Arab Republic and preliminary survey for an upper northern coaxial project in Iraq.

Mr. Shukla said that besides these the TCIL has made 25 more offers for foreign contracts of which orders have been received in nine cases. By the end of March 1980, the TCIL might be executing projects abroad worth Rs. 10 to Rs. 15 crores by way of provision of services.

While the TCIL is now buying equipment from developed countries like Japan in the future, there will be scope for buying them from Indian Telephone Industries Ltd. and other Indian companies. Besides the 150 Indian telecommunication personnel working in these projects abroad would be exposed to the latest expertise available in the developed countries.

Mr. Shukla said that the TCIL was also giving technical advice to some major newspapers on facsimile transmission and to certain bulk users of telecommunication services like the Indian Oil Corporation, and the steel plants.

The TCIL was set up in August 1978 to make available to developing countries various categories of staff and exports to establish, operate and maintain telecommunication services.

CSO: 5500

SATELLITE PRODUCTION PLANT COMPLETED

OW210956 Tokyo KYODO in English 0708 GMT 21 Nov 79 OW

[Text] Tokyo, 21 Nov, KYODO--A large integrated plant for producing artificial satellites was completed Wednesday by Mitsubishi Electric Co. at its sophisticated industrial complex in Kamakura, southwest of Tokyo.

According to the leading Japanese electric-electronic machinery manufacturer, production of artificial satellites is already one of its established business lines. The company already built five satellites, including the National Space Development Agency's experimental geostationary communication satellite "Ayame," at its Kamakura complex.

But the work had so far been done in the "clean room" in the complex's air-conditioned section and general satellite assembly testing room.

The new plant, complete with research and development and testing facilities and with a total floor space of 3,800 square meters, was built at a total cost of yen 2 billion in anticipation of greater demand for artificial satellites both at home and abroad.

The plant is capable of building simultaneously four large satellites, each four times the size of the largest one so far built at the complex.

Its testing section features equipment to handle Japan's prospective satellites of tri-axial type expected to be the mainstay of all artificial satellites Japan is to orbit in future.

CSO: 5500

BRIEFS

RADIO TELEPHONE SERVICE--Federal Communications Minister Mohyuddin Baluch formally inaugurated in Quetta 3 December the radio-telephoto service between Quetta and the major cities of the country. The service provides facilities for transmitting and receiving pictures between Quetta, Lahore and Karachi. From Karachi, the telephoto service can be extended for international use. [Karachi Domestic Service in English 1700 GMT 3 Dec 79 BK]

CSO: 5500

BRIEFS

XINJIANG TELEPHONE SERVICE--Urumqi, Nov 16--Telephone service is now available in 98 percent of the people's communes of the Xinjiang Uygur (Sinkiang Uighur) Autonomous Region. Today telephone lines total 48,000 kilometres as against 23 kilometres in 1951. At that time there were only nine telephones in all of rural Xinjiang and messages had to be delivered by people on horseback or on foot. It has been very difficult to introduce telephone service to rural Xinjiang because of the varied topography and the vast distances. Many communes are on the fringes of deserts, on the high plateaus or at the foot of snowcapped mountains. Now telephone service here is better than in other pastural areas of the country. People's communes in the Pamirs may make direct calls to Beijing. [Text] [OW160339 Beijing XINHUA in English 0312 GMT 16 Nov 79 OW]

CSO: 5500

BRIEFS

YUGOSLAV COMMUNICATIONS DELEGATION IN SOFIA--Sofia, November 6 (BTA)--Mr Pando Vanchev, minister of communications, today met a Yugoslav delegation, headed by Mr Ante Zelic, secretary of the Federal Committee for Transport and Communications of the Socialist Federal Republic of Yugoslavia. The two ministers discussed the state of the communications links between Bulgaria and Yugoslavia. Stress was laid on the need of expanding cooperation in telephone communications, in radio, television, in the manufacture of equipment for telecommunications and the rapid transport of letters. Both sides expressed a wish for direct contacts between Bulgarian and Yugoslav institutes and organizations in designing and building new equipment and in increasing the number of telephone channels between Sofia and Belgrade. Questions connected with the rational utilization to space facilities for the needs of information and communications were looked into. [Text] [AU061447 Sofia BTA in English 1430 GMT 6 Nov 79 AU]

CSO: 5500

RATES OF SOME POSTAL, TELEPHONE SERVICES INCREASED

Sofia OTECHESTVEN FRONT in Bulgarian 28 Nov 79 p 2

[Article by Angel Andreevski: "What Will the New Rates Be for Telephone, Telegraph and Postal Services and When Will They Go Into Effect?"]

[Text] A decree of the BCP Central Committee and the Council of Ministers, effective 1 January 1980, initiates new rates for telephone calls, telegraph and postal services. There have been no changes in the charges for services of this type for more than 23 years.

Most rates for domestic postal, telegraph, telephone, radio and television services are unchanged. The decree increases the rates only for automatically dialed telephone calls in cities and villages from 1.6 to 2 stotinkas regardless of length of time. The same increase applies also to automatically dialed intercity calls. For these, depending on the zone, a call likewise costing 2 stotinkas is registered after every pulse, generated at 5-second intervals. The charge then for a 1-minute call will be 24 stotinkas, for a 3-minute call 72 stotinkas, and for a 10-minute call 2.40 leva. The rates for telephone calls in and between cities and villages where there is no automatic dialing remain the same.

Changes in telegraph services: The charge for a routine telegram under 20 words will be 50 stotinkas plus 2 stotinkas for every word over these 20. Experience shows that personal telegrams are usually under 20 words.

The charge for an "express" telegram is twice that of a routine telegram, and for a "special priority" telegram, triple.

The fee for a reply-paid telegram depends on the category of reply-telegram indicated by the patron and the number of words therein, but the minimum is 20 words.

The postal services anticipate a rise only for first-class mail. Thus, for a letter, postal card or picture postcard to an address inside the country the rate is standardized at 5 stotinkas for every 50 grams.

The rate for printed matter, documents or printed forms in wrappers, weighing under 200 grams, will be 5 stotinkas each, plus 2 stotinkas for every 50 grams over these 200 grams.

There is an additional charge of 20 stotinkas for the acceptance of a parcel of first-class or printed matter at a patron's home; 30 stotinkas for a small package (under 1 kilogram), including the fee for a registered parcel; and 10 stotinkas for notification of delivery, including the fee for a registered parcel. For registered letters the fee will be 5 stotinkas, and for special delivery 10 stotinkas.

No increase in postal rates for foreign countries or for parcel post and money orders is envisaged.

Effective 1 January 1980, the minimum rate for letters will be 5 stotinkas. The printing of stamps in 1- and 2-stotinka denominations will be discontinued.

These have been printed heretofore in runs of millions. There are also some already on order. With these the needs of branch post offices and citizens to make combinations in affixing stamps on registered correspondence and letters for foreign countries can be met for a long time. Necessary quantities will be printed in addition only when needed. Henceforth the minimum denominations of postage stamps will be 3 and 5 stotinkas, and those of higher denominations will be according to postal rates.

The Ministry of Communications will issue postal envelopes with and without illustrations in the future, but now in the 5-stotinka denomination. The price of these envelopes will be set at the value of the postal denomination and the envelope.

The ministry has prepared informational material for the press that will guide citizens on how to determine the rate for letters and printed matter sent to Bulgaria and foreign countries.

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CSO: 5500

MODERNIZATION OF BUDAPEST TELEPHONE SERVICE DESCRIBED

Budapest ORSZAG VILAG in Hungarian No 44, 31 Oct 79 pp 8-9

[Interview with Lajos Laszlo, director of operations of the Budapest Telephone Directorate and Balazs Csiszer, deputy director of operations by Miklos Szabo: "The Mysterious PCM": date and place not given]

[Text] It is impossible to talk about the Budapest telephone of tomorrow without talking about today and yesterday. Yesterday was the 19th century. The city was 17 years from the millenium for which they were preparing a multitude of magnificent buildings and facilities. The country, known for its pusztas [plains], horse farms, cowboys and magic romanticism, a country with a reputation of being exotic, had just awakened from its centuries long dreams. Even Budapest had taken only its first, uncertain steps toward becoming a capital in the European sense.

One of the closest colleagues of Edison, the great inventor, and the man who first had the idea of a telephone exchange was Tivadar Puskas, who was entrusted with issuing European permits. His brother, Ferenc Puskas, organized an enterprise here to introduce the invention domestically.

This was a courageous, even reckless, initiative. And, as events were to prove, it had inherent errors.

In any case, the first Budapest telephone exchange began operation, with 50 subscribers, on 1 May 1881 in an apartment at number 10 Furdo utca, the present Jozsef Attila utca.

By 1887 it had become obvious that the telephone had won over the domestic public, but also that the Tivadar Puskas Leasing Association was incapable of overcoming its limitations. It could no longer satisfy either the qualitative or the quantitative requirements. So in that year the National Assembly proclaimed the state postal monopoly.

About 20,000 telephone subscribers were recorded before World War I. By the time of World War II their number had grown to 70,000. All of this was recounted by Dr Endre Vajda, postal historian and retired director-in-chief of the Hungarian Postal Museum.

Deputy Director Lajos Laszlo, director for operations for the Budapest Telephone Directorate, however spoke about the present.

[Laszlo] It is worth stopping a moment and meditating on the data," he said. "Before the liberation Budapest had more than one million inhabitants--and it had 70,000 telephone subscribers. Today the population of our capital has doubled but there are five times as many telephones. And after the war we were left with nothing but ruins and useless junk.

[Csiszer] That is true," added Balazs Csiszer, deputy director for development. "The retreating Germans blew up the Jozsef and the Drisztina exchanges. The others were either destroyed or suffered such damage as to be practically inoperable. After the liberation we put the first 400 station large sub-exchange into operation with the help of the Soviet army.

The postal workers, in cooperation with the workers of the Standard Factory (now the BHG [Beloiannisz Telecommunication Factory]), started from nothing, virtually working by hand. Still the old exchanges were restored surprisingly quickly, by 1948, and the network belonging to them was put into operation. But the postal service still bears the burdens of the inheritance of yesterdsy. A large part of our cable network is old and obsolete with paper insulation. We take care of, repair and maintain 5,000 kilometers of cable in our capital. We never catch up. But we are making progress, slowly, step by step. The first modern crossbar exchange was put into operation in 1971 and others have followed since. What is the difference between the crossbar and the old rotary system? I could give you a long list of advantages--connection time is faster, there is less need for maintenance, it is possible to measure time and make long distance calls, we can use keyboard or pushbutton sets instead of dial sets.

The journalist senses the obvious fact of development. But there is something he does not understand.

[Question] So why is it virtually impossible to make a call? Why must we wait sometimes 10 minutes for the dial tone? Why are there so many stations impossible to call?

The question does not find Balazs Csiszer unprepared:

[Csiszer] In some branches of sport certain groups of muscles develop strongly while others lag behind. Look, for example, at gymnasts or rowers. This is the situation with us too. The conversion to modern technology has not been accompanied by a development of the obsolete cable network. It is vain for us to establish new exchanges and modernize and expand the old ones. If a subscriber in Ujpest is to talk without trouble to a subscriber in Albertfalu he must overcome complex technical problems. In the first place his call signal must reach his own exchange. There the machines select the proper different exchange and transmit the signal

there. Only then can the call be completed. And I have simplified all this a great deal. Everyone knows that every chain is only as strong as its weakest link. The weakest 'link' in our network is the cables. A cable with 52 pairs can handle 52 conversations simultaneously, not 53. That is why the government has now put 1.3 billion forints at the disposal of the postal service, in addition to the development prescribed in the plan.

[Question] What will such a gigantic sum be used for?

[Csiszer] We will build tomorrow with it. Before all else we will strengthen that weak link. We have bought from a French firm equipment which will make possible the most modern microwave links. The task of this will be to ensure links between telephone exchanges. The central unit, the Budapest Microwave Center, will operate on Szabadsag Mountain; the other units will go to existing or future telephone exchanges. With the aid of micro PCM (Pulse Code Modulation) equipment information can be transmitted on 480 channels simultaneously. At the Budapest Microwave Center these signals will be divided up and regrouped with technically complicated equipment and then sent on to the proper telephone exchange. It is like a gigantic marshalling yard where arriving trains are broken up into cars and the cars are put on tracks corresponding to their destination, and made up into trains again. Then they are sent to various end-stations. Except that the micro PCM does all this electronically, automatically, without wires or cables, according to the principle of radio wave propagation.

[Question] So the cable network will become superfluous?

The deputy director smiled and explained further:

[Csiszer] Not entirely. Not even the most developed countries have reached this stage of development. Subscribers will continue to be linked to the telephone exchanges by wires. We will maintain cable networks between some telephone exchanges and develop them with the so-called line PCM system.

[Question] What is the purpose of this?

[Csiszer] One version of the PCM--which we call the primary one--multiplies the capacity of the existing cable network on the basis of time sharing.

[Question] What is time sharing?

[Csiszer] Think of a motion picture. The projector is constantly projecting pictures. The viewer does not notice that actually he is seeing a multitude of still pictures one after another. In a certain sense the

PCM produces this process too. The conversations taking place on the line pairs are sliced up with incredible speed. This makes it possible to transmit 30 conversation parts on a single pair simultaneously without any of the speakers noticing it. Where 150 pairs were needed before five will be enough hereafter. Or, to turn it around, where there were five pairs before capacity will be increased 30 times--naturally in accordance with the pace of development. By building in the PCM the same cable becomes capable of transmitting 150 conversations simultaneously instead of the five before.

[Question] Are there other advantages?

[Csiszer] Sound transmission factors will become substantially more favorable. The understandable quality of speech will improve. The redundancy--line and without lines--means the possibility of variation and greater reliability.

[Question] In addition to all this, what does it mean to the people of Budapest?

[Csiszer] It means the installation of 35,000 new telephone stations in the years 1979-1980. But let me note that not only the capital will enjoy this advantage. With the development of the system the telephone network will be expanded and improved throughout the country. The government has given the postal service 1.3 billion forints above the preliminary plan. Now it is up to them, to make good use of the possibilities, quickly and correctly. And it is also their task to ensure the proper functioning of the already existing 385,000 telephone stations.

8984
CSO: 5500

BRIEFS

NEW ZAGREB RADIO TRANSMITTER--A 100-kilowatt Zagreb radio transmitter, which will transmit on medium wave, was commissioned at Deanovac near Ivanic-grad today. It is exactly 30 years since work started at Deanovac on the first powerful transmitter of this kind not only in Yugoslavia but also in the Balkans. The new transmitter, which cost 7 million dinars, was produced by the workers of Radio Industrija Zagreb and assembled by experts of the Zagreb Radio and Television. [Text] [LD281642 Belgrade TANJUG Domestic Service in Serbo-Croatian 1603 GMT 27 Nov 79 LD]

CSO: 5500

BRIEFS

ELECTION TO INMARSAT--Buenos Aires, 25 Oct (NA)--The National Telecommunications Company (ENTEL) reported today that Argentina was elected as the American regional representative to the International Satellite Telecommunications Organization (INMARSAT). As a result, Argentina will be a member of the organization's council. [Buenos Aires NOTICIAS ARGENTINAS in Spanish 0100 GMT 26 Oct 79 PY]

CSO: 5500

BRIEFS

MEETING ON CUBAN RADIO--Radio broadcasting in Cuba is experiencing extraordinary advances in every aspect and radio networks currently have the technical equipment capable of making broadcasts with the required quality. Nivaldo Herrera, president of the Cuban Radio and Television Institute (ICRT), has made this statement in his closing remarks at the Second National ICRT seminar held in the city of Sancti Spiritus. It was announced at the meeting that a Cuban radio agency will be established early next year as part of the ICRT. The agency will be responsible for channelling cooperation and program exchanges among the country's radio stations. Further radio broadcasting development plans and activities to be undertaken over the rest of this year also were covered at the 3-day meeting. Reports concerning handling of news, quality assessment and control, programming, social research and radio festivals were presented at the meeting. [FL261126 Havana Domestic Service in Spanish 1100 GMT 26 Nov 79 FL]

CSO: 5500

ANTEL IMPROVES, EXPANDS MICROWAVE SYSTEM

Montevideo EL DIA in Spanish 25 Oct 79 p 11

[Text] ANTEL [National Telecommunications Administration] has completed so far this month (October) several radio microwave hookups; these projects are partly financed by the Inter-American Development Bank [BID]. The microwave network now stretches from Colonia to Salto with the main stations at the end-point and at Carmelo, Mercedes, Fray Bentos and Paysandu.

Another hookup is between Florida and Rivera and Artigas with stations in those cities and in Durazno, Trinidad, Paso de los Toros and Tacuarembo. From Rivera a hookup will be made with the entire territory of Brazil. The Minas-Melo connection will have repeaters in these cities and in Treinta y Tres.

The Montevideo-Canelones-San Jose-Rosario-Colonia-Buenos Aires system will be renovated. For this it will be necessary to construct a hookup of 1,500 km which will require 30 stations, 40 towers and a number of access roads. Through this project it will be possible to complete the network between all the capitals and the important cities; the automatic Telex network (national and international) will be extended over the entire country, and telegraph service will be clearly improved.

Television Network

ANTEL will also carry television programs to all our territory and to do this it has carried out work in different localities. For the expansion of radio hookups an antenna is being installed in Pando.

Urban Networks

A network is being constructed in Montevideo using plastic cables and the Centenario area will be the first in which this type of cable, which meets the most rigid requirements, is to be used. At other places in our capital several channels have been assigned to expand the urban network. In the cities of Carmelo, Fray Bentos, Durazno, Mercedes, Florida and Maldonado the interconnecting of branches and the installation of cables continues and

and in other places some of the work has already been completed. In San Jose de Carrasco and in Solymar automatic service is being installed.

New Terminals Installed

A new telecommunications agency was put into service at Aguas Dulces in the Department of Rocha. In San Jose de Carrasco also a new central station was put into operation with an initial 500 lines for its own network and automatic equipment for its own use as well as for El Pinar and Solymar. At Piriapolis a central station with an initial 600 lines and automatic equipment is already in use.

Projects Under Consideration

ANTEL is considering a series of improvements of networks in Pocitos, Ciudad Vieja and Punta Carretas. The same is true in Piriapolis and the peninsula of Punta del Este.

Improvements are being made on the ANTEL buildings in several places around the nation.

Up to this date 18,636 requests for telephone repairs have been received in Montevideo. Repairs have been made in 17,232 cases; the repair of 1,404 telephones is consequently still pending.

9204
CSO: 5500

BRIEFS

MAP, NOTIMEX COOPERATION AGREEMENT--A cooperation agreement in the field of information was signed this afternoon between MAP and NOTIMEX. The agreement provides for the exchange of information and national news between the two agencies in Morocco and Mexico. For this purpose, the two agencies will be linked by a telegraphic line between their offices in Madrid. [Excerpt] [LD272244 Rabat Domestic Service in Arabic 2000 GMT 27 Nov 79 LD]

CSO: 5500

BRIEFS

NEW ADEN RADIO TRANSMITTER--Information Minister Rashid Muhammad Thabit today opened the new headquarters of Aden's National Radio and Television Service and a 400-kilowatt mediumwave transmitter which will improve reception of Aden radio throughout the country as well as in the Yemen Arab Republic. These projects were built with Czechoslovak aid. [LD301644 Aden Domestic Service in Arabic 1230 GMT 29 Nov 79 EA/LD]

CSO: 5500

REBROADCASTING STATION TO BE HEARD NATIONALLY

Bissau NO PINTCHA in Portuguese 13 Oct 79 p 3

[Excerpts] "Sal Rebroadcasting," a young station that has been winning the support of the local and central authorities, will soon initiate medium-wave broadcasts, using a transmitter built entirely by radio technicians employed at the Amilcar Cabral International Airport, which will enable the station to be heard on other islands of Cape Verde.

The station operates in two rooms of the former club for airport officials, which is now the "Amilcar Cabral Recreation Center." Fitted with a battery of tape recorders, tapes and files, serving as a desk, plus a microphone, one of these rooms "masquerades" as a studio for the radio announcers.

The programming of "Sal Rebroadcasting," which has won praise from lovers of good music, is dinstinguished for its presentation of local news and its strongly cultural character.

It broadcasts from 1230 to 1400 hours and from 1830 to 2100 hours, 6 days a week, and presents the "Expresso" program on Sunday mornings, rebroadcasting the Official Broadcasting radio news and some programs from its national radio stations.

There are plans at present for a certain collaboration between the official structures and this new station, which is the product of the initiative of radio lovers of good will, through contacts with the Official Broadcasting Station and Radio "Voz de Sao Vicente" and with the support and guidance provided by the party in Sal.

Despite the dedication of the eight members of the commission (four announcers and four radio technicians) and their great willingness to do any kind of work, the lack of money and even of operators to maintain the station present truly difficult problems.

Starting in May of this year, the broadcasts, which has been intermittent until then, began again in force, with a serious and responsible character and a political orientation, and even with better technical organization. "Sal Broadcasting" has made leaping strides, stimulating listeners and programmers, and militants have rallied around the station.

6362
CSO: 5500

BRIEFS

FRENCH RADIO ASSISTANCE--Paris--France will soon boost its "voice" in Africa by helping to build the continent's most powerful shortwave radio station at Libreville, Gabon, it was officially announced in Paris yesterday. It will broadcast to South Africa in English. The new station, to be called "Africa Number One", will have funds poured into it at the very moment that the BBC has announced cuts in its foreign language service. Gabon is paying R52-million for four huge transmitters, supplied by the French Thomson-CSF company. Studios are being built in Libreville, and the French Co-operation Ministry is carrying out an audience rating survey. At present it is planned to beam programmes in English to South Africa. But the radio will also broadcast to the Middle East. Under this new Franco-Gabonese venture, the French overseas radio will use the Libreville transmitters to extend its range in Africa and counter Radio Moscow, the BBC and the Voice of America. [Text] [Johannesburg RAND DAILY MAIL in English 3 Nov 79 p 5]

CSO: 5500

TELECOMMUNICATIONS TO BE DEVELOPED DURING NEXT FIVE YEARS

Nairobi DAILY NATION in English 23 Nov 79 p 11

[Text] During the next five years of the current Development Plan, Kenya is destined to top all the African nations, as the country with the most developed postal and telecommunication services.

This was said yesterday by Mr. Kimng'eno arap Ng'eny, managing director of the Kenya Posts and Telecommunications, when he addressed members of the Kenya National Farmers' Union in Nakuru.

He said during the current development plan, Kenya had projected Sh. 1,100 million to be spent on promoting, modernising and generally developing postal and telecommuncations services.

Many foreign governments and internatical institutions, Mr. Ng'eny told the farmers, had agreed to give Kenya financial and technical assistance. He said Kenya was thankful to all the aiding communities.

Mr. Ng'eny said that at the present time, Kenya had 664 postal stations, and this number was expected to rise to 787--meaning 123 new more postal stations, by the end of the planned period.

He said whereas the Kenya Government and the Corporation realised the usefulness of the postal and telecommunications services, farmers too were quickly finding both post offices and telephones, to be vital tools of success in their work.

It was now easy for farmers to communicate, not only with their institutions such as the Kenya Farmers Association, but also among themselves.

Thus, Mr. Ng'eny added, the postal services and those of telephone were no longer luxuries in rural Kenya. Already these services had developed considerably in urban areas.

There would be fast communications between urban and rural Kenya in future, and these accelerate general progress in the country--and Kenya would, during these five years, take the lead in posts and telecommunications services in the whole of Africa.

He told the farmers that in terms of Pan-African telecommunications, plans were already under way to develop telecommunications between Kitale to Lokichggio towards the Sudan, and to Lokitaung through Lodwar.

CSO: 4420

BRIEFS

NEW TELEPHONE LINES PROVIDED--The Kenya Posts and Telecommunications Corporation knows the public's complaints of lack of adequate services, and is providing new telephone lines and maintaining the existing ones. This was said yesterday by Mr. Kimng'eno arap Ng'eny, the corporation's managing director, when he opened a Kenya Posts and Telecommunications Productivity council meeting in Nairobi. It was the first such meeting since the corporation's inception after the death of the East African Community. [Text] [Nairobi DAILY NATION in English 30 Nov 79 p 5]

CSO: 5500

SWABC TO CONSTRUCT BUILDING FOR SHORTWAVE TRANSMITTERS

Windhoek THE WINDHOEK ADVERTISER in English 26 Nov 79 p 3

[Text]

THE SWABC has called for tenders for the construction of a shortwave transmitter building, to be situated on the farm Hoffnung, near Windhoek.

Closing date for the tenders will be December 11, 1979.

Mr P J B Coetzer, chief of management of the SWABC said last week that the project involving the shortwave transmitters was to give essence to a decision taken by the Board of the SWABC that two shortwave transmitters be erected to serve the areas in SWA where there was no FM coverage.

These transmitters would provide the Territory with its own coverage.

However, Mr Coetzer pointed out that although there were two transmitters, there would only be one channel. "It is the intention that both transmitters will initially broadcast programmes for the English, Afrikaans and German sectors of the population, which will of course mean divided coverage."

The estimated cost of the building is about R200 000. Mr Coetzer pointed out that the building was merely to house the two transmitters and provide office accommodation for technical staff.

The transmitters which have already been ordered are due for arrival here near the end of this month. It was envisaged that the building would be completed at the end of May next year.

Installation of the transmitters would take place shortly after this and if all goes well the SWABC would go on the air on July 1, 1980.

CSO: 5500

SATELLITE RECEIVING STATION, DATA CENTER PLANNED

Lagos DAILY TIMES in English 8 Nov 79 p 10

[Article by Boye Oseni]

[Text] Preparatory work has begun for the establishment of a remote sensing satellite receiving station and data handling centre in the country.

This hint was dropped in Ibadan, by the Minister of Communications, Alhaji Akanbi Oniyangi, while opening a training seminar on "remote sensing of earth's resources."

The seminar was organised by the United Nations in conjunction with the Food and Agricultural Organisation. Participants from 15 countries, including Nigeria, are attending.

He said the establishment of the centre was in conscious realisation of its manifold potential advantages and the multiple effects of the remote sensing technology.

Alhaji Oniyangi urged participants to ensure that further investment in the science was not limited to application of analysed data alone. "It should be a part of your objective to ensure that remote sensing technology for economic planning," he stressed.

Resources

He said it should also bring with it a transfer of new computer technology, new aircraft and spacecraft systems to monitor the resources of the land, sea and atmosphere.

The minister reminded participants of their heavy responsibilities, adding that "more positive results" in area of remote sensing satellites technology were expected from them.

The transfer of technology implicit in the seminar, he said, should be seen to be complete.

Alhaji Oniyangi also hoped that the seminar would provide sufficient foundation for the take-off of the proposed "remote sensing satellite receiving station, and data handling centre," in the country.

Seimilar training seminars had been held in Western Germany, Brazil, Bolivia and Kenya under the auspices of the United Nations.

CSO: 4420

ARRIVAL OF ELEVEN ICL, IBM COMPUTERS EXPECTED

Salisbury THE FINANCIAL GAZETTE in English 23 Nov 79 p 1

[Text] Eleven new computers worth over $10 million are expected to arrive in Zimbabwe Rhodesia within the next three weeks.

The eight ICL and three IBM machines are destined for statutory authorities and the private commercial and industrial sector to replace existing older models, industry sources say. The computers have been ordered to cope with the anticipated increased workload following the abolution of sanctions and the following economic boom. The computers had been paid for overseas and are not affected by foreign exchange allocation.

A major set-back to the full utilisation of the new machines will be the shortage of trained operating staff. At a recent seminar organised by the Computer Society of Zimbabwe Rhodesia, the vice president, Mr O. Oosthuizen, said the present level of trained personnel was about 25 percent under the industry's needs. The situation would become worse as demand grew and companies became more computer conscious.

Results of a recent survey show that about 70 percent of trained computer personnel were leaving Southern Africa every year. Low wages and poor conditions of service were given as the reasons. A data processing manager earned between $1 100 and $1 500 a month, a senior analyst $950 to $1 400, a senior programmer $600 to $1 200 a month, and a junior programmer $275 to $400. These salaries were not in line with those offered overseas and would have to be increased considerably if the industry was to function viably, sources said.

A spokesman for a leading computer company said there were no recognised commercial computer operating or data processing courses available in Zimbabwe Rhodesia. Staff was trained entirely within the company, under instructions set by computer manufacturers. Commenting on greater Black involvement in the industry, he said the patterns of logic to be followed when operating computers was alien to the African mind, but had to be adhered to rigidly when using a manufacturers machine. This implied no lack of intelligence by Africans, but training manuals were geared to a possibly different thought process. There were few Blacks involved in the computer industry, the majority of operators being coloured or Asian. Until the training system was altered, little additional involvement in the industry by Africans was expected, he said.

ARRIVAL OF NEW DATAKOR COMPUTER REPORTED

Salisbury THE FINANCIAL GAZETTE in English 23 Nov 79 p 2

[Text] Data Corporation of South Africa (Datakor), the largest South Africa-based computer organisation in the Republic has undertaken an "educational" programme to familiarise Zimbabwe Rhodesians with computers.

The Rhodesian-born managing director of Datakor, Mr Nick Frangos, says his company is also looking for local partners to undertake a joint venture with it.

"We're mainly here to run seminars to educate the local market in data communications," said Mr Frangos.

"And we have also undertaken negotiations with a number of local organisations with the view to setting up a similar company in this country under local control."

Although Datakor is relatively new to the field of manufacturing computer hardware and software, it has gained a great deal of experience over the years as agents for foreign computer firms.

But his company was determined to make greater inroads in the field of manufacturing, he said.

"One third of our sales are in locally-made products and have proved that South Africa can develop its own computer industry," said Mr Frangos.

So successful has Datakor been in its venture that negotiations are underway with overseas interests to provide them with hard and software.

Datakor's success is based on four factors, he said.

--It is the only local South African organisation which has designed, developed and marketed a range of "intelligent terminals" and micro computers.

--It outspends all other organisations in the market on software support in relation to turnover.

--Its "software team" is regarded as one of the most competent in the Republic because the initial recruitment was done "at the top."

--And the organisation has developed software that enables it to construct networks around the original main-frame computer.

The major advantage of building networks around existing computers is that users are no longer forced to rely on one supplier, Mr Frangos said.

"I believe we can achieve the same thing in Zimbabwe Rhodesia if it's handled the right way," he said.

"The objective would be that, within five years, 30 percent of the market should be in local hands."

CSO: 5500

MICROWAVE COMMUNICATIONS SYSTEM BEING EXTENDED

Mbalane THE TIMES OF SWAZILAND in English 13 Nov 79 p 2

[Text]

THE INSTALLATION of microwave equipment at Nhlangano, Siteki and Hlatikulu has commenced, the Department of Posts and Telecommunications has announced.

The completion of this expansion is expected to ease the congestion now being experienced between these centres and Mbabane. The new equipment is expected to be in use by next March.

The increase in the number of trunk circuits between these towns and Mbabane will alleviate the present congestion of telephone traffic, according to statement released by the Department.

The completion of the installation of the equipment in March will not mean the introduction of automation in the town's telephone exchanges. Automation, according to a spokesman for the Department, will follow later.

The Department is already making preparations to extend the microwave network to Pigg's Peak, Mhlume, Big Bend and into Mozambique within the next two to three years.

Training on the maintenance and operation of the equipment in-service, is said to have been intensified during the past few years and that as a result Swazi technicians are now in a position to handle these on their own.

A second microwave link with South Africa and Swaziland was brought into operation last September and this link has a capacity of 720 telephone circuits. However, at present only 80 circuits are said to be routed via this link.

The number is currently being increased to 120 and by next April a total of 160 will be in use.

This link, according to a Post Office spokesman, will improve telephone and telex services between the two countries and other countries transmitting South Africa.

The spokesman further stated that Manzini has been provided with 20 direct circuits on this new link, thus avoiding the routing via Mbabane of Manzini telephone traffic to South Africa and further afield.

The first phase of the Swaziland microwave project was brought into service between Mbabane and Manzini, last January, and the telephone service between the two towns is reported to have considerably improved.

The reliability of the microwave link with a repeater station at Ntondozi mountain is said to be remarkably higher than it used to be when telephone circuits were relying on telephone openwire pole route.

CSO: 5500

BRIEFS

SATELLITE TELECOMMUNICATIONS STATION--Bukavu, 25 Nov (AZAP)--With the entry into operation of the Bukavu ground station, all Zairians will henceforth appreciate the real political, economic and cultural situation of the Kivu. The regional commissioner for the Kivu, citizen Mulenda Shamwangue Mutebi, made this declaration yesterday on occasion of the inauguration of the Bukavu satellite communications station by the state commissioner for posts and telecommunications, Maj Gen Wabali Bakitambisa. On the occasion, citizen Mulenda highlighted the importance of telecommunications for a country as vast as Zaire, and in particular for Kivu, one of the most enclaved of Zaire regions. Therefore, on behalf of the population of his region, he paid a tribute to the president-founder of the MPR [Popular Movement for the Revolution], citizen Mobutu Sese Seko, who spares no efforts to provide the country with a telecommunications infrastructure. [Text] [AB261030 Kinshasa AZAP in French 0805 GMT 25 Nov 79 AB]

CSO: 5500

BRIEFS

TELEVISION MARCHES INTO HILLS--The blue screens lit up on the eve of the Great October holiday in the apartments of miners in the mining settlement of Fiagdon and other settlements in Kurtatinskoye Gorge. A powerful retransmitter has begun to operate in Severnaya Ostetiya. There are now 23 television relay stations in operation there. By the end of the 5-year plan another five retransmitters will be commissioned to transmit color programs from central and local television to remote areas of the mountainous region. [Text] [LD191643 Moscow SOVETSKAYA KULTURA in Russian 7 Nov 79 p 1 LD]

CSO: 5500

BELGIAN CONTRIBUTION TO TELECOM '79 DISCUSSED

Brussels POURQUOI PAS? in French 4 Oct 79 pp 59-69

[Article by Andre H. Lemoine: "Another Industry's Ambitions"]

[Text] TELECOM '79: a major event. This term has come into disrepute. But it characterizes perfectly this third international telecommunications exposition, which is held in Geneva every 4 years. Organized by the ITU [International Telecommunications Union], it is an impressive display of equipment and innovations in this field. It also provides an opportunity to air one's know-how, make productive contacts, and procure profitable contracts. Belgian industry, with its well-established capabilities, did not pass up this great opportunity in Geneva. Its presence there was outstanding and attracted considerable attention, but this was certainly not thanks to any support from the Belgian Government...

The annual turnover of the Belgian telecommunications industry is 23 billion francs, a figure that is all the more significant in that 50 percent of this sum is owing to exports, or better yet, capital goods exports. For those who might not be impressed by these figures, here is a comparison: 11.5 billion francs represents several billion more than exported by France last year in this field, and as much as the state plans to save in 1980 through the INAMI [National Institute for Illness and Disability Insurance]...

Another fact: It is said that Belgian enterprises do not invest. This affirmation is doubly false. First, because it is obvious that Belgian industries must invest in plant. Secondly, and this is specifically the case in the telecommunications sector, they use good investment judgment, not hesitating to go all out on research and development. Though it may not be widely known, the fact is that this industry's overall annual budget for research and development is approximately 15 percent (over 3 billion francs) of its revenues, and that it employs approximately 2,600 people in these services and in engineering.

Of course, in certain domains, particularly that of consumer goods, competition from the developing countries (South Korea, Singapore, etc.) has become too heavy, and investments in these sectors have been reduced. But in others, and this brings us back to telecommunications, investment has grown very rapidly.

Figures show in this respect that, in Belgium, capital expenditures and investment in research have practically doubled this year as compared to last year. This is not without its effect on employment. In Siemens Belgique, for example, where only the past management has been retained, employment has increased by 6 percent in less than 1 year.

"B" as in Blunder

But one must beware of excessive optimism, in that in the absence of a vast and well-structured domestic market the task of the Belgian industrialists is a difficult one. Nevertheless, our industries producing for the telecommunications market are deploying an obvious effort; the same, however, cannot be said of government policy. We will not dwell here on the tax on investments, which represents a heavy burden. We will simply say that it remains a totally incomprehensible paradox which strangles the development of this industry and is not without its repercussions on employment, which in telecommunications totals more than 17,700 persons. Let us rather return to our topic. To begin with, there is the grand rhetoric of government officials on the redeployment of Belgian industry, and their sometimes severe criticisms of our businessmen, whom they consider lacking in aggressiveness. But what did we find at Geneva in the TELECOM '79 exhibition? That the American pavilion, sponsored entirely by the U.S. Government, was as vast as it was impressive. The same was true for Japan, the FRG, etc. One might say this is normal, in that those are powerful and rich countries. But France was also strongly represented at Geneva: an imposing pavilion, numerous stands, the presence of Minister Norbert Segard, all attesting the interest of the state in the activities of its industry. Moreover, on French Day, 24 September, visitors were able to watch a two-way video conversation between the French pavilion at Geneva and the Palais des Congress in Paris. The ORTF [Office of French Broadcasting and Television] organized a special television newscast direct from the pavilion over Channel 1, featuring Norbert Segard...

Alongside this impressive display, Belgium once again cut the figure of a poor relation. Minister Urbain was unable to go to Geneva. His health did not permit it. The excuse was good. But not a single high-ranking official was available from the entire Belgian Government panoply to support the Belgian effort in Geneva. Only one member of the Telegraph and Telephone Administration staff was able to go and missed the press visit to the Belgian stand and the dinner that followed it (there was too nice a French invitation, it seems). He took part, however, in the conference organized by Fabrimetal. But let us go on. And let us not be too severe, because there was the participation and presence of the OBCE [expansion unknown] in the Belgian pavilion. But let us be fair. The documents offered by that office to the curious visitors were worth their weight in gold. "B" for blunder is the most appropriate descriptive rating for this extraordinary assistance. Not only were most of these documents dilapidated and unsuited to the occasion, but some were downright disquieting. Especially one splendid brochure titled "Belgian Engineering Abroad," Second Edition, 1973... What did one find on page 110 of this work? A long description in three languages--French, English and Spanish--with a picture of the civilian hospital in Amman, of a firm called Eurosixtem. Assuredly, something to interest the Arab representatives who had a "stand" a few paces away.

But to dwell any further on official inefficiency and blunders would be slighting our industrialists, whose presence in Geneva was dynamic and effective.

The Teleprocessing Revolution

Fortunately, our industrialists are not one war behind. The giant developments that have taken place in electronics, in the miniaturization of components, the interfacing of the telephone, television and computer, in short, all that goes into what is now called teleprocessing, are no strangers to them. The object of their participation in TELECOM '79 was to show that they have been active partakers in this formidable technological revolution. And they fulfilled their mission to perfection. Each firm went all out to inform the visitors--and potential clients--of the range of its capabilities, exhibiting state-of-the-art realizations and compellingly interesting innovations.

The ACEC [Charleroi Electrical Engineering Shops], for example, true to their tradition as exporters, exhibited their line of cable television equipment, pointing out that the firm is the principal manufacturer of this specialized equipment in Belgium, the country with the densest cable network in the world. Going beyond this activity, the firm also asserted its competence in next-generation high-capacity transmission facilities, namely: fiber-optic systems terminals for community reception from satellites, and digital techniques for processing and transmitting video signals.

Bell Telephone, 85 percent of whose exports are to countries outside the EEC, featured the many aspects of its industrial production, particularly its experience with turnkey contracts. And half of its stand was taken up by a new product line: a rural radiotelephone system. Briefly, it can be described as a mobile, truck-transportable station, made to order individually for developing countries or sparsely populated regions. The central office--with a maximum capacity of 1,000 subscribers--occupies one container and may be connected to subscribers by traditional means or by radio. In this system, the subscriber needs only a simple telephone instrument and need not play the part of a radio amateur to communicate with the outside world. Its mobility, its ease of use, and its several unique design features appear to assure a good future for this equipment.

Cableries d'Eupen's line of polyethylene-insulated television distribution cables attracted a great deal of attention. The firm was also able to point with pride to a recent order: the installation of 150 km of cables for the television and radio network at the Olympic games in Moscow.

[illegible] (General Engineering and Trading) offered some highly specialized products: [illegible]mputers for recording and controlling operating times, transceivers (the [illegible] ones used by the Belgian gendarmerie), and highway communications terminals. It also showed an alarm system for aged persons that will automatically dial a telephone and identification center number.

This is a sophisticated system that has already been procured by Liege-Ville, Jambes and Nemur.

GTE-ATEA, which is basically oriented toward private and public telephony, exhibited its Intercom 8000, a private telephone system designed especially for offices and small business establishments, featuring modular expansion capacity up to 25 stations and 5 central office trunks. The firm also offered larger systems in a widely diversified range of capacities and featuring interfacing of telephone and computer.

MBLE, an exclusively electronics firm, highlighted and promoted its identity as a "complete-line manufacturer," that is, a manufacturer of components as well as stock items of equipment. The firm exhibited a complete and very convincing sampling of its offerings, from printed circuits to data transmission models to telephone central office terminals. It also showed a new product: the PCR/VCR-600 military radio communications system, a small number of which have already been ordered by the Belgian army.

SAIT Electronics, which is dedicated to systems engineering, services and turnkey operations, highlighted its capabilities in the fields of communications and marine radio navigation, offering, in particular, a new radio console that includes all the newest and most sophisticated features required for modern navigation.

Siemens Belgique featured its activities in the field of components for telecommunications, primary and secondary radar, and mobile transmission equipment. It displayed its line of DIL switchers, DIL cable connectors, and crimped-conductor connectors for plug-in units. We discovered that in the case of the TS 400 E domestic telephone system as well as the EWS public projects, some of the operational projects essential to their development were carried out in Belgium, such as, for example, the construction and testing of prototypes. We like to think that this fact offers the hope that the Belgian subsidiary of this large German industrial group will benefit from some fallout of the marvelous contract awarded recently by Egypt to Siemens (FRG) and Thompson (France).

Siemens Belgique also piqued the curiosity of visitors with a prize gadget: an eavesdrop-proof telephone system in the form of two dispatch cases, one for each end. Each dispatch case includes an encoder-decoder, a telephone and a repository for the regular telephone. When a call is put through, each correspondent places his "horn" in the dispatch case, picks up his "gadget" telephone and proceeds with the conversation. For an eavesdropper listening in on the line, the conversation is inaudible... It is amusing. But is it useful? In Belgium, everyone knows the telephone eavesdropper is non-existent... But then, as we know, the system is meant for export.

Tele-Norma is a company that has developed arbitrage systems for banks, smoke and fire detector systems for homes, burglar alarm systems, etc. But at Geneva, it displayed other accomplishments, especially in the field of telecommunications systems for small business establishments, and specifically its Teno B II (8 lines, 20 stations), which is based on microprocessors and equipped with integrated circuits to provide all-electronic operation and control. Its features include call rerouting, three-way conference calls, call transfer, and others.

A Fully Integrated Industry

This brief survey of the firms and products represented at TELECOM '79 shows to what extent Belgian industry is an integral part of the teleprocessing revolution, and is able, by way of its carefully designed products, to respond to customer needs. This is not without its importance at a time when teleprocessing is changing the world of telecommunications and information processing. For behind this barbaric term "teleprocessing," a major transformation is taking place, a transformation that will be felt as much by government administrations and large and small enterprises as by the individual. For example, the conventional telephone instrument as we now know it is due to disappear, at least in terms of its current single function. It will become a terminal incorporating, some day, a television screen and a telecopier; in sum, it will be the means of accessing a full range of services.

There is feverish activity everywhere, as much to be in the vanguard, and this is the case of the industrialists, as to meet the teleprocessing challenge, and this is the case of governments.

Countries everywhere are interested in this technological revolution, which is at least as far-reaching as the invention of the printing press.

In Belgium, official interest has been centered mainly in the activities of the RTT, which, however, is not the only one concerned. Our radio and television institutes are also concerning themselves with teleprocessing, to the extent that the BRT [expansion unknown] is planning tests in this field in March 1980, using the British CEEFAX word-processing system. The RTBF [expansion unknown], after a brief lag, is now also addressing the problem but is leaning toward a French system.

"It is the Pal-Secam affair all over again," a Belgian industrialist said to us at Geneva. "Unless there is arbitration, Belgian products will once again be the world's most expensive, because we will have to conform to two standards..."

It appears, however, that Minister Urbain, under pressure from the private sector, will be taking the initiative in a vast effort to coordinate the administrations that are directly concerned: the RTT, the BRT and the RTBF. To the extent this might come about, the telephone and television networks could provide the needed vehicles for the launching of teleprocessing in Belgium.

But what can possibly come out of this coordination effort when we know from the start that there is a conflict of interests, of technical options, particularly in regard to the problem of revenues! Furthermore, the matter concerns several ministries. A quick count reveals that at least eight ministries are likely to be involved in the final decision... Need more be said?

But while all is not rosy from the governmental viewpoint, there are also clouds in the sky of the Belgian telecommunications industry, particularly as regards the MBLE. It seems that this firm, initially essentially Belgian but now committed to the Philips group, is little by little losing its research potential to Holland... A matter that needs looking into. Like the teleprocessing revolution, the last of which has not yet been heard.

9399
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POLITICS, NOT COST, IS MAIN ISSUE IN NORDSAT DEBATE

Helsinki HUFVUDSTADSBLADET in Swedish 8 Nov 79 p 2

[Editorial by Erik Wahlstrom]

[Text] Why are things so quiet around Nordsat now that the Nordsat report has been published, and the debate ought to be at its hottest? Is it perhaps because Nordsat, all the time, has been a political issue, and that the report cannot affect this fact?

What little debate has been going on is now starting to concentrate on the question whether or not Nordsat is worth the cost. Here, the cost should be put in relation to other big ventures which the taxpayers have had to, or will have to, finance, such as Valco or the Helsinki subway.

The Nordsat report is now ready. The moment is approaching when the politicians will have to adopt or oppose the Nordic TV satellite, however much they would like to benefit by it.

But prior to that, the volumes of the report, with facts, evaluations and conjectures, will be passed on, for comments, to the authorities involved, all of which have their own interests to safeguard, and most of which will have to decide on the situation regarding the unknown and disturbing TV satellite. (Indeed, there is one group which, of course, will not be submitting its comments, viz. the viewers. Nobody will ask them whether or not they want a greater freedom of choice on the air.)

Pertti Hemanus, the media researcher, wrote last Monday in ILTA-SANOMAT that there is a general silence now that the Nordsat report has become ready. It should now be time for a debate, but everybody is silent. In his opinion, this is due to the fact that the TV satellite is generally regarded as an abortive venture, and that those who have been for it, have become embarrassed at their earlier standpoints.

But the silence can also be interpreted in a different manner. The report is perhaps not too interesting. Why was it actually requested? To elucidate various matters? Hardly. It was rather to give the politicians scope for formulating their views on the satellite. The time must have come for a decision.

The time has now come, and the report is regarded as a matter of minor importance. If there is a political will for a Nordsat, it will have to be created, regardless what the report says and vice versa.

The sphere of politics has become so widely expanded during the sixties and seventies that a big cultural issue such as Nordsat is automatically defined as politics. When television arrived in Finland in the fifties, it was, however, still the era of the big private cultural funds, and culture was generally regarded as standing next to politics. But if television had become topical only now in the seventies, it would not be at all inconceivable for our political parties to have agreed to reject it. (In brackets, it could be added that many of the arguments directed against Nordsat are arguments against television as such.)

On the whole, the Nordsat issue, therefore, has been following the current political lines in our country.

The positive attitude towards Nordsat increases, for example, in general the farther to the right one comes.

The leftist media researcher Hemanus is himself a good example of this. He has been co-author of a report how Nordsat would be received by the prospective Nordic TV viewers. Nobody was too surprised when it turned out that Hemanus' report was negative.

But let us assume that the task had gone to Hemanus' counterpart and adversary to the right, Professor Osmo A. Wiio. I wonder if his report would not have been positive?

One may furthermore play with the idea that a TV satellite cooperation with the Soviet Union would have become part of the new 5-year general agreement on trade exchange between our countries, which will take effect at the turn of the year. If Hemanus had been given the task of examining the consequences of the satellite, he would probably have submitted a positive report.

In the present situation, the Nordsat cost seems to become the main issue. This has provided the basis for a fruitless and confusing discussion, as is always the case when it is a question of costs relating to cultural activities. One operates with incommensurable magnitudes.

To be sure, the whole thing can be made into an amusing mathematical game. According to Nordsat's original, somewhat unprepared statement of goals, it would increase the understanding among neighboring countries, the knowledge of languages, the viewers' freedom of choice, and would meet the cultural needs of immigrants in their new country (in practice, Finns

in Sweden). Let us, furthermore, assume that it would be possible to measure to what extent Nordsat would actually further these goals, if at all. We may introduce the unit "1 north" to signify the average annual increase in the average Nordic citizen's knowledge of languages, understanding of neighboring countries, freedom of choice and--if he is an immigrant--the satisfaction of his cultural needs. The difficult question which politicians would then have to decide is: how much will "1 north" cost: 1 mark? 10? 100?

The absurdity of attempts to find out what Nordsat will or will not cost is obvious. It would then be simpler to frankly maintain: "It becomes too expensive" or "it does not become too expensive," in which connection one's answer would be determined by one's previously adopted political position on the satellite. Hemanus seems to find that Nordsat becomes too expensive.

But the question of costs is, of course, not entirely in the clouds. One may, for example, compare Nordsat's projected cost with the other big costs which Finnish taxpayers already have had to defray.

And it then turns out that Nordsat, actually, is quite an inexpensive project for us.

The total construction costs for Nordsat have been quoted at 1.4 billion marks (but the dispute, no doubt, continues on this question, for Professor Martti Tiuri, who, for example, yesterday surprised his audience during a lecture in Stockholm by pointing out that Finland ought to be able to have a TV satellite completely on its own, has figured out costs for Nordsat which are but one tenth of the sum.)

If the sum is divided among the Nordic countries in proportion to their gross national products, one arrives at the result that Sweden would be liable for 41.4 per cent of the costs, while Finland would have to pay 16.1 per cent, or approximately 225 million marks.

But in a supplementary budget, the Riksdag recently granted the fateful picture tube enterprise Valtra 349 million marks. It is open to discussion whether Nordsat, from a purely economic point of view would not have been a safer investment, quite apart from the dissemination of culture--from this follows the interest of our electronics industry in the project.

And when, in the early eighties, the Helsinki subway will start its operation, the city of Helsinki will, on its own, have to defray 1.1 billion marks, in other words the same amount as the entire cost of the construction of Nordsat.

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TWO MILLION TELEPHONE LINES TO BE INSTALLED IN 1980

Paris LE MONDE in French 21-22 Oct 79 p 13

[Text] The 25.5 billion francs of new project authorizations allocated to telecommunications in 1980 mark "the very high priority placed by the government on development in this sector," said Secretary of State for Posts and Telecommunications Norbert Segard on 19 October in discussing the PTT's [Posts and Telecommunications Administration] capital budget with the press.

These investments will enable the installation of around 2 million lines next year, thus exceeding the goal of 15.5 million lines in 1980 set by the 7th Plan. Furthermore, 25,000 telephone booths will also be installed, bringing the total to 100,000. In addition, 240,000 interurban lines will be installed in the rural area.

"This national investment," Mr Segard commented, "is producing remarkable results in exports." In 1978, 2.5 billion francs of telecommunications equipment were exported. Since the beginning of 1979, contracts have been signed in this sector totaling 8 billion francs.

Investments in the postal services sector will increase by 15 percent. They will provide in particular for continued automation of mail-sorting operations. Seven of the nine sorting centers to be built in 1980 will be automated. This, according to Mr Segard, will permit 95 percent of all mail to be distributed the morning after its having been deposited in mail boxes. (Seventy percent of all mail distribution currently meets this criterion).

Lastly, Mr Segard indicated that 5,500 new jobs will be created by his ministry in 1980, 2,000 of which will be in the postal services.

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ESTABLISHMENT OF UNICOM SERVICE REPORTED

Athens TA NEA in Greek 11 Oct 79 p 12

[Excerpts] Greek enterprises, and above all those which concern themselves with shipping, have acquired a new "weapon" in their daily work, a weapon which permits them to compete on "equal terms" with those in foreign countries: Recently, UNICOM NEWS, the international network of economic, commercial, and shipping news and information, began to operate in Greece as well.

What this pertains to is a system which is unknown as yet to the broad public, but which is positively revolutionary. And the fact alone that any Greek businessman can know at any hour of the day or night all the developments in all sectors of the economy, anywhere in the world, suffices as an "outline" of the possibilities of this system, which has already begun to have a successful career on the Greek market.

International Network

The UNICOM NEWS is a service which was established jointly by the UNITED PRESS INTERNATIONAL (UPI)--which is the largest independent news agency in the world--and the COMMODITY NEWS SERVICES (CNS), an organization well-known internationally, since it has managed to be regarded as the largest and most reliable source of specialized financial information, not only in America but also in the major commercial cities throughout the world.

The bulletins, which are transmitted on a 24-hour basis by UNICOM, are an extraordinary mixture of financial news and information. They include all the data which are collected daily and very rapidly throughout the world by the UPI and the CNS, as well as all the information which the offices of UNICOM and its special correspondents pick up in the principal commercial and financial centers. Added to this information is also that which UNICOM collects from national news agencies of various countries and from newspaper chains with which it is linked by agreements concerning the immediate exchanging of information and news.

Shipping

One of the most important branches of the UNICOM NEWS is surely that which covers international shipping. This branch of the UNICOM NEWS operates under the title MARITIME TRADE NEWS (MTN), which was created following the great success of its sister concern in the United States, which is internationally known under the title TRANSPORTATION NEWS TICKER (TNT).

The MTN, as a branch of UNICOM NEWS, transmits continuously, on a 24-hour basis and with open teletype lines, all the news and reports which concern shipping. The news and reports in question are those which experienced officials of the UNICOM NEWS collect in all important areas of the terrestrial globe, supplemented by those of the TNT of New York as well as those of the COMMERCE'S MARITIME DESK of the NEW YORK JOURNAL. At the same time, use is also made of selected information from the UNITED PRESS INTERNATIONAL.

In Greece, the UNICOM NEWS functions within the framework of the Greek News Organization, which operates according to international standards, with top-notch officials and improved electronic equipment. Its headquarters is in Athens (96 Valaoritou Street, telephone 3608-916).

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BRIEFS

LASER TELEPHONE NETWORK--A year from now, 900 new circuits through which a person's voice will "travel" with the aid of laser beams are to be installed by the OTE [Greek Telecommunications Organization] between the Aris exchange and Piraeus. The relevant decision was made at the last session of the Administrative Council of this organization (9 October 1979). Initially, it provides for the installation of these 900 circuits, and soon after this--provided that the results are considered satisfactory--it provides for a more extended application of this new technology in the telecommunications networks. The new circuits, whose installation will cost about 40 million drachmas, will be connected by means of special cables, in the interior of which there will be optical fibers made of glass instead of wires, and through these the voice will "travel" free of noise interference. [Text] [Athens TA NEA in Greek 13 Oct p 1] 12114

CSO: 5500

GOVERNMENT EXPERIMENT ALLOWS LOCAL, NONOFFICIAL FM STATIONS

Hamburg DER SPIEGEL in German 12 Nov 79 pp 198, 200

[Text] The Stockholm fans of the Camel pop group had their big day: on ultra short wave they could intoxicate themselves to their heart's content with the Camel hit "The Sleeper"--a total of 240 times.

The monotonous program did not come from an amateur radio pirate. The technicians of the state telecommunications agency "Televerket" introduced in February of this year a new transmitter with 1-watt capacity on the frequency of 88 megahertz.

Today 16 very small transmitters are broadcasting in 15 Swedish towns and communities. In a large-scale experiment set to last until 1981 short-range radio--that is the official designation--is to shake up Sweden's centralized radio system.

Associations, clubs, and groups, which can hardly have a word on the state "Sveriges Radio" media monopoly, will in the future be able to transmit on the ultra short wave band between 87.5 and 100 megahertz. The telecommunications agency estimates that 200 transmitters could be included within these frequencies without disturbing the reception of the three state broadcasting stations.

The "Vatterwelle 98.5" of the Bondberget (Farmer's Hill) at the southern tip of the Vatter Lake started test operation in the spring as the first transmitter of the new Everyman's radio. It is aiming at 50,000 potential listeners in the industrial towns of Joenkoeping and Huskvarna, the bulwark of the free churches and sects which have so much influence in Sweden.

The experiment began exactly as the critics had feared: the rich Pentecostal congregation in Joenkoeping broadcasting its religious service live, and most of the remaining seven congregations also beamed mostly Christian uplift. The Malmoe Social-Democratic paper ARBETET called the Joenkoeping transmitter a "hallelujah channel."

The free churches were the first to apply for short-range radio and they also have the necessary funds. The "Zion Congregation" of the Pentecostal Church

in Linkoeping, for example, outfitted its studio in the church for 150,000 crowns with professional switchboards, tape-cutting machines, copying devices, tape recorders, and record players.

Associations and clubs in other towns also demonstrated that broadcasting can be cheap. In the northern Swedish town of Umea 24 groups shared the cost of the studio set up in the cellar of a rented house. One hour of transmitting time costs the inexperienced Umea Radio only 120 crowns, since almost all the programs are produced by members free of charge.

The Umea groups also fulfill the political expectations of the creators of short-range radio. The Chile Committee, a "Palestine Group," Section 56 of Sweden's Amnesty International, the Boy Scouts, the Association for Consumer Protection, and an "Alternative Christmas" agitate for their causes from the cellar studio.

From the capital the homosexuals can be heard over "Stockholm's Gay Radio" or the immigrant associations of the Turks, Armenians, and Syrians each in its own language.

The "Ideal Association of Radio Technicians" concerns itself with technical quality for a whole hour on Sunday. The goal of these professionals, employed by "Sveriges Radio": "We want to give tips to the other associations and experiment ourselves on improving tone quality."

In contrast to the state radio, the short-range radio programs do not have to be politically neutral and evenly balanced, but merely follow the general principles of media ethics. On the other hand advertisements for merchandise and services are strictly prohibited.

Despite this the weekly transmitting time of the Stockholm City Radio--up to now 40 hours--is no longer sufficient and is therefore to be expanded to 90 hours. Of course there will be fewer hot rhythms in the future: Sweden's copyright association is only foregoing the fees which are due it for the first experimental year.

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